

October 2016 Climate Review for Puerto Rico and U.S. Virgin Islands.

Synopsis: *October can be described as a generally wet month across much of the area with above normal temperatures. There is a chance of near to above normal rainfall during Nov-Dec-Jan.*

Summary

A seasonable weather pattern prevailed across the islands during October. Diurnal and locally induced convection was observed most afternoons across the climatologically favored areas of interior and western PR, resulting in heavy rainfall activity across these areas. A couple of significant features affected the islands during the month. On October 3rd and 4th the outer bands from Hurricane Matthew, which took a track through the Windward Passage, produced bands of showers and thunderstorms and hazardous marine conditions. On October 18th-19th, an area of low pressure tracking to the north of the area produced rounds of strong showers and thunderstorms, with the heaviest activity focused along Western and Southern PR.

Based on the Cooperative Observer Network Data (COOP), 113 percent of the normal rainfall was observed across Puerto Rico. Preliminarily, an average rainfall total of 8.98 inches was measured, which is 1.04 inches above normal (Table 1). Although good rain felt across south central and southeast Puerto Rico where abnormally dry to moderate drought conditions persists, this rainfall was not enough to introduce improvements in drought conditions across the area. Across the U.S. Virgin Islands, 105 and 64 percent of the normal rainfall was observed across Saint Thomas and Saint Croix, respectively (Table 1). The mean temperature for Puerto Rico was 80.4°F, which is approximately 2.0°F warmer than the 30-year average from the National Centers for Environmental Information (NCEI). Temperatures across Puerto Rico ranged from 96°F in Ponce 4E on the 20th of October, to 64°F in Aibonito on October 4th.

The mean temperature at TISX and TIST was 83.0 and 84.0°F, which is 0.9 and 1.2 °F above normal, respectively. In fact, October 2016 ended as the 7th and 4th warmest October on record at the San Juan Area and TIST, respectively.

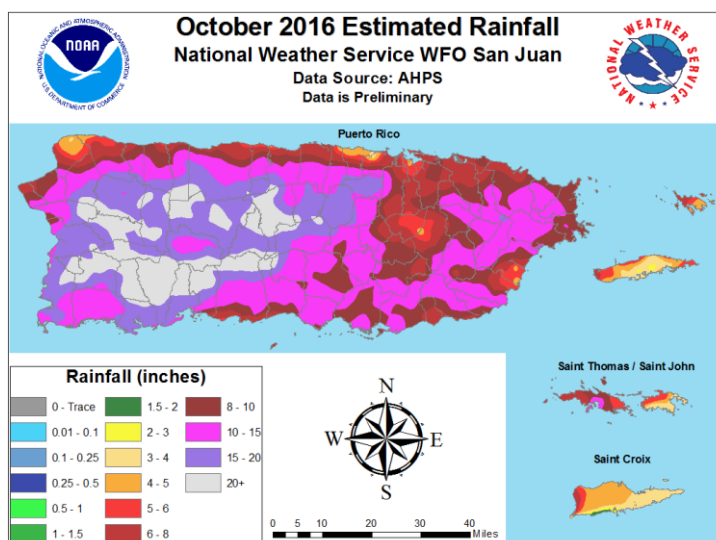
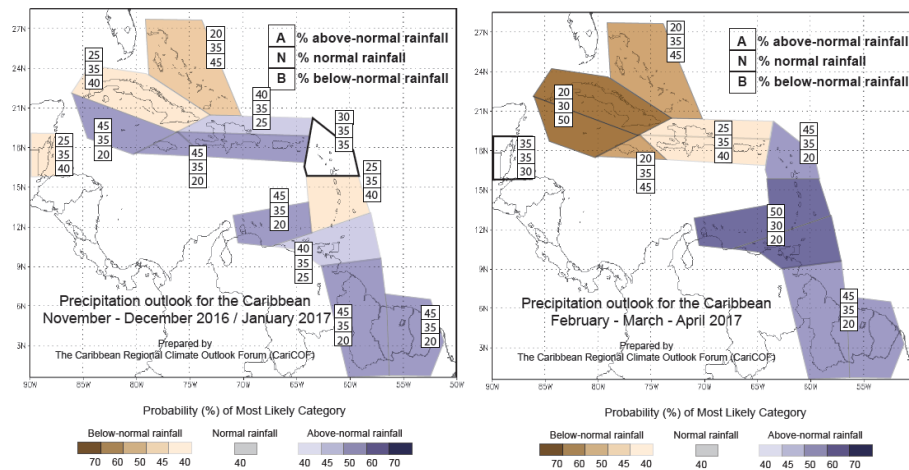


Figure 1. Rainfall Totals based on AHPS

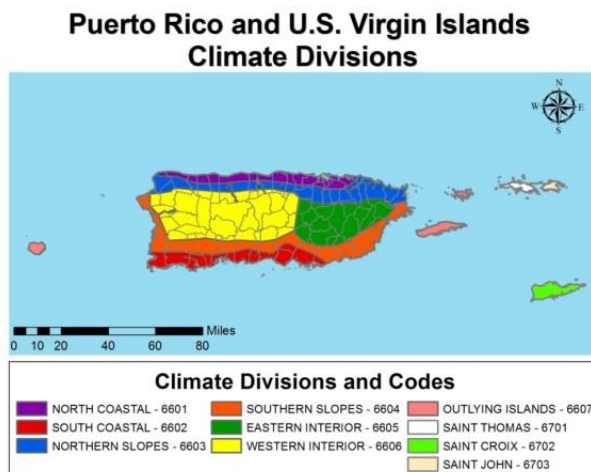
Looking Ahead



A majority of models suggests a developing weak La Niña or cold-neutral ENSO conditions. La Niña chances are decreasing from 50-60% confidence for NDJ 2016-'17, down to 20-30% by FMA, when return to ENSO neutral conditions is more likely (50-75% confidence). La Niña tend to shift rainfall chances for DJF to above-normal in the south and east of the Caribbean, and below-normal in the extreme north-west. However, with the forecast ENSO conditions suggesting a weak La Niña at most, their effect on rainfall may not be dominant. Global models show limited signal as to the expected rainfall during FMA. In terms of Tropical North Atlantic SSTs, warmer temperatures are expected to persist throughout the region during NDJ and, to a lesser degree, FMA. As a result, normal to above normal rainfall is expected across the local islands NDJ, becoming normal to below normal during FMA.

More Info: <http://rcc.cimh.edu.bb/long-range-forecasts/caricof-climate-outlooks/>

Average Rainfall Accumulation per climate zones based on COOP



	North Coastal	South Coastal	Northern Slopes	Southern Slopes	Eastern Interior	Western Interior	All PR	St Croix	St Thomas
Observed (Oct)	6.21	8.95	3.88	6.18	9.85	12.52	8.98	3.46	5.57
Normal (Oct)	7.45	6.48	6.86	9.04	9.24	8.57	7.94	5.41	5.31
% PON (Oct)	83	138	57	68	107	146	113	64	105
Accumulated YTD	53.12	33.05	50.42	41.65	68.80	75.89	57.18	33.75	24.23
Normal accumulation YTD	53.30	34.08	53.18	46.19	66.02	57.68	51.75	30.93	33.02
% PON accumulated YTD	100	97	95	90	104	132	110	109	73

Table 1. Oct 2016 and Year to date (YTD) Rainfall (inches). Percent of Normal (PON).

Historical Rainfall and Temperature

	Puerto Rico		San Juan Area		IST		ISX	
1	1968	3.74	1979	1.17	2011	1.95	1964	1.05
2	2014	4.26	1915	1.61	1988	2.00	2002	1.10
3	1993	4.43	1963	1.63	1979	2.21	1960	1.23

Table 2. Driest Octobers on record.

	Puerto Rico		San Juan Area		IST		ISX	
1	1985	21.71	1970	15.06	2010	16.20	1977	16.20
2	1970	20.40	1927	12.15	2005	12.49	1990	12.95
3	1990	17.95	2005	11.94	1974	12.45	1954	11.79

Table 3. Wettest Octobers on record.

	Puerto Rico**		San Juan Area		IST		ISX	
1	2015	80.5	2015	84.6	1993	85.5	1972	84.3
2	1951	80.5	2009	84.4	1994	85.4	2015	83.7
3	1947	80.3	1980	84.4	1992	85.2	2013	83.5

Table 4. Warmest Octobers on record.

	Puerto Rico**		San Juan Area		IST		ISX	
1	1941	71.4	1917	78.3	1954	78.7	1954	78.8
2	1940	72.5	1913	78.3	1956	80.3	2010	80.0
3	1942	76.2	1922	79.0	2010	80.5	1981	80.3

Table 5. Coolest Octobers on record.

** Following years are not included due to lack of data: 1955, 1956, 1957, 1959, 1967, 1978, 1979**

	Puerto Rico	San Juan Area	IST	ISX
Temperature	78.4 °F	82.1°F	82.8°F	82.1°F
Rainfall	8.30"	5.59"	5.42"	5.25"

Table 6. Normal Values for October

Monthly and Seasonal Highlights for Primary Climatological Data Sites.

	September	October	November	Season SON	Year to Date
San Juan Area		7 th warmest 83.8F		5 th warmest 83.1F	6 th warmest 81.7F
IST	4 th warmest 85.1F	4 th warmest 84.0F		7 th warmest 83.1F	
ISX		4 th driest 1.39"		driest 6.99"	8 th driest 25.05"

Table 7. Spring 2016

Additional Highlights Based on COOP Data

Wettest Days

Station	Inches (inches)	Date
ENSENADA 1 W	3.47	10/18/2016
MARICAO FISH HATCHERY	3.40	10/31/2016
ARECIBO OBSY	2.84	10/28/2016

Highest Maximum Temperatures

Station	Temperature (°F)	Date
PONCE 4 E	96	10/20/2016
AGUIRRE	95	10/3/2016
JUNCOS 1 SE	95	10/14/2016

Lowest Minimum Temperatures

Station	Temperature (°F)	Date
PONCE 4 E	64	10/27/2016
AIBONITO 1 S	64	10/4/2016
MARICAO 2 SSW	64	10/19/2016

Data is preliminary and has not undergone final quality control by the National Centers for Environmental Information / NCEI/. Therefore, this data is subject to revision. Report based on data received until Nov 5th 2016.

Puerto Rico Climate Record Period: 1940 to 2016

San Juan Metro Area Climate Record Period: 1898 to 2016 (Primary climatological site)

Cyril E. King Airport/St Thomas Climate Record Period: 1953 to 2016 (Primary climatological site)

Henry E. Rohlsen Airport/St Croix Climate Record Period: 1951 to 2016 (Primary climatological site)